

LIST OF CONTENTS

NUMBER 1/2

COMPUTATIONAL STRUCTURAL MECHANICS AND FLUID DYNAMICS—ADVANCES AND TRENDS

Announcement	v
A. K. Noor and D. L. Dwyer: Preface	vii
1. <i>Fluid Structure Interaction and Aeroelasticity</i>	
G. P. Guruswamy: Interaction of fluids and structures for aircraft applications	1
V. Shankar and H. Ide: Aeroelastic computations of flexible configurations	15
J. T. Batina, R. M. Bennett, D. A. Seidel, H. J. Cunningham and S. R. Bland: Recent advances in transonic computational aeroelasticity	29
2. <i>CFD Technology and Reacting Flows</i>	
G. C. Paynter: CFD technology for hypersonic vehicle design	39
R. W. Walters, T. Reu, J. L. Thomas and W. D. McGrory: Zonal techniques for flowfield simulation about aircraft	47
G. Volpe: Solutions of the Euler equations for transonic and supersonic aircraft	55
E. S. Oran and J. P. Boris: New directions in computing reacting flows	69
B. Grossman and P. Cinnella: The computation of non-equilibrium chemically-reacting flows	79
3. <i>Micromechanics, Deformable Media and Damage Mechanics</i>	
S. Nemat-Nasser: Micromechanics of failure at high strain rates: theory, experiments, and computations	95
T. Sussman and K. J. Bathe: Some advances in the analysis of semideformable media	105
S. Kalyanasundaram and D. H. Allen: A model for predicting damage dependent damping in laminated composites	113
K. Runesson, S. Sture and K. Willam: Integration in computational plasticity	119
4. <i>Stability and Eigenproblems</i>	
C. Preussner and F. G. Kollmann: On the stability of a spinning, fluid filled and sectorized rotor	131
K. R. Rajagopal: Swirling flows of viscoelastic fluids	143
H. C. Chen and R. L. Taylor: Solution of eigenproblems for damped structural systems by the Lanczos algorithm	151
5. <i>Probabilistic Methods and Chaotic Dynamics</i>	
T. A. Cruse, Y.-T. Wu, J. B. Dias and K. R. Rajagopal: Probabilistic structural analysis methods and applications	163
E. Dowell: Chaotic oscillations in mechanical systems	171
6. <i>Perturbation and Spectral Methods</i>	
A. H. Nayfeh: Numerical-perturbation methods in mechanics	185
C. Bernardi and Y. Maday: Spectral methods for the approximation of fourth-order problems: application to the Stokes and Navier-Stokes equations	205
P. F. Fischer, L.-W. Ho, G. E. Karniadakis, E. M. Rønquist and A. T. Patera: Recent advances in parallel spectral element simulation of unsteady incompressible flows	217
7. <i>Element Technology (Finite Volume, Finite Elements and Boundary Elements)</i>	
M. J. Siclari: Three-dimensional hybrid finite volume solutions to the Euler equations for supersonic vehicles	233

J. Fish and T. Belytschko: Elements with embedded localization zones for large deformation problems	247
C. C. Rankin and B. Nour-Omid: The use of projectors to improve finite element performance	257
Y. H. Kim and S. W. Lee: A solid element formulation for large deflection analysis of composite shell structures	269
H. Okada, H. Rajiyah and S. N. Atluri: Some recent developments in finite-strain elastoplasticity using the field-boundary element method	275
O. A. Pekau, P. K. Syamal and V. Batta: Time domain boundary element analysis of two-dimensional elastodynamic foundation problems	289
 8. <i>Adaptive Methods</i>	
G. F. Carey, M. Sharma, K. C. Wang and A. Pardhanani: Some aspects of adaptive grid computations	297
R. Löhner: An adaptive finite element solver for transient problems with moving bodies	303
P. L. Baehmann, M. S. Shephard, R. A. Ashley and A. Jay: Automated metalforming modeling utilizing adaptive remeshing and evolving geometry	319
R. A. Ludwig, J. E. Flaherty, F. Guerinoni, P. L. Baehmann and M. S. Shephard: Adaptive solutions of the Euler equations using finite quadtree and octree grids	327
S. D. Rajan, A. D. Belegundu and J. Budiman: An integrated system for shape optimal design	337
 9. <i>Parallel Processing Machines and Applications</i>	
T. Donaldson, K. Doty, S. W. Engle, R. E. Larson, J. G. O'Reilly and S. Tandjung: Innovative architectures for dense multi-microprocessor computers	347
M. E. Hayder, W. S. Flannery, M. G. Littman, D. M. Nosenchuck and S. A. Orszag: Large-scale turbulence simulation on the Navier-Stokes computer	357
S. W. Hammond and K. H. Law: Architecture and operation of a systolic engine for finite element computations	365
J. R. Szuch: Application of advanced computational technology to propulsion CFD	375
C. Levit and D. Jespersen: Explicit and implicit solution of the Navier-Stokes equations on a massively parallel computer	385
C. T. Sun and K. M. Mao: Elastic-plastic crack analysis using a global-local approach on a parallel computer	395
R. Ou and R. E. Fulton: An investigation of parallel numerical integration methods for nonlinear dynamics	403
 10. <i>Visualization, Mesh Generation and Artificial Intelligence Interfaces</i>	
R. E. Smith and E. L. Everton: Numerical flow field visualization	411
M. S. Shephard, K. R. Grice, J. A. Lo and W. J. Schroeder: Trends in automatic three-dimensional mesh generation	421
A. D. Williams: The development of an intelligent interface to a computational fluid dynamics flow-solver code	431

NUMBER 3

CIVIL-COMP 87

Announcement	v
B. H. V. Topping: Preface	vii
L. Z. Emkin: Computers in structural engineering practice: the issue of quality	439
S. L. Newsome, W. R. Spillers and A. M. Vosburgh: Quantitative evaluations of human factors savings in CAD workstations	447

T. D. Sloan and D. F. Rossney: A design and production system for a precasting yard	451
M. Sobaih and M. M. Abdin: Seismic analysis of infilled reinforced concrete frames	457
J. G. Dickens and L. L. Jones: A general computer program for the yield-line solution of edge supported slabs	465
P. Bhatt, L. M. Abdel Hafiz and D. R. Green: Direct design of reinforced concrete skew slabs	477
R. M. Richard, W.-K. Hsia and M. Chmielowiec: Derived moment rotation curves for double framing angles	485
L. Gründig and J. Bahndorf: The design of wide-span roof structures using micro-computers	495
R. L. Sack and D. Arnholtz: Simulating uniform roof snow loads	503
A. B. Templeman: Discrete optimum structural design	511
U. Kirsch and S. Taye: High quality approximations of forces for optimum structural design	519
R. Levy and H.-S. Perng: Optimization for nonlinear stability	529
T. K. H. Tam and A. Jennings: Optimal plastic design of frames with tapered members	537
M. P. Saka: Optimum design of nonlinear space trusses	545
H. Adeli and K. V. Balasubramanyam: A synergic man-machine approach to shape optimization of structures	553
B. L. Karihaloo and S. Kanagasundaram: Optimum design of statically indeterminate structures subject to strength and stiffness constraints and multiple loading	563
S. C. Pasternack and S. Gao: Numerical methods in the stability analysis of slopes	573
K. Kawano, Y. Yamada and K. Venkatarama: Dynamic response analysis of soil-offshore structure systems	581
A. K. Azad, M. K. Abdallah and M. H. Baluch: A computer aided analysis of horizontally curved slab type bridge deck continuous over discrete pier supports	587
T. J. A. Agar: The analysis of aerodynamic flutter of suspension bridges	593
G. J. Turvey and H. Drinali: Nonlinear first yield design of imperfect circular plates in uniform edge compression	601
M. Adan and I. Sheinman: Effect of stretching-bending coupling and shear deformations on post-buckling behaviour of laminated beams	609
M. Heinisuo: An exact finite element technique for layered beams	615
L. Gründig and M. Neureither: Data management tools with respect to the geometrical analysis of deformations	623
M. A. Crisfield: Numerical methods for the non-linear analysis of bridges	637
A. J. L. Crook and E. Hinton: Numerical requirements for modelling fracture formation in deep level longwall mining	645
F. L. Wong and B. H. V. Topping: Finite element studies for non-destructive vibration tests	653
N. Shiraishi and H. Furuta: Effect of maintenance on structural reliability	671
L. Gründig: Minimal surfaces for finding forms of structural membranes	679
M. R. Barnes: Form-finding and analysis of prestressed nets and membranes	685
R. Carneiro de Barros: Improved convergence of the influence coefficient method	697
M. Papadrakakis and C. J. Gantes: Truncated Newton methods for nonlinear finite element analysis	705
T. Taniguchi: An interactive automatic mesh generator for the microcomputer	715
K. C. Hover: The use of computers for concrete materials analysis	723
N. A. B. Yehia and A. H. El-Hajj: A knowledge-based approach for the design of spread footings	729
J. Christian and S. U. Mir: The use of expert systems and sensitivity analysis in formwork productivity and design	737
D. E. Grierson and G. E. Cameron: A knowledge-based expert system for computer automated structural design	741
R. Fruchter, J. Gluck and Y. I. Gold: Application of AI programming techniques to the analysis of structures	747
H. B. Harrison: Microcomputer analysis of simple and continuous beams	755

D. J. Gunaratnam: A knowledge-based expert system for tutoring in structural engineering	767
Announcement	775
Software Survey Section	I

NUMBER 4

COMPUTATIONAL ENGINEERING MECHANICS

Announcement	v
C. W. S. To: Preface	vii
Part I	
<i>Keynote Speakers</i>	
T. Kawai: The way I have passed in the field of solid mechanics	777
W. Zhong: Some developments of computational solid mechanics in China	783
1. <i>Theoretical Development and New Element Models</i>	
D. S. Kang and T. H. H. Pian: A 20-DOF hybrid stress general shell element	789
P. Ruge: Spectral classification of lumping methods in C^0 problems	795
R. J. Astley and W. Eversman: Wave envelope elements for acoustical radiation in inhomogeneous media	801
C. Wang and T. H. H. Pian: Hybrid semiLoof element for buckling of thin-walled structures	811
2. <i>Solution Strategies and Methodology</i>	
X. Bei, Z. Zhang and L. Zhou: The numerical simulation of ductile fracture	817
Y. M. Chen: High level parallelism in hierarchy of GPST algorithm for parameter identification in engineering mechanics	821
Y. Gong: Local/global structural analysis by transition elements	831
M. Huang and Y. Long: Calculation of stress intensity factors of cracked Reissner plates by the sub-region mixed finite element method	837
R. P. Leal and C. A. Mota Soares: Adaptive boundary element method for bi-dimensional elasticity	841
S. Lin and X. Yang: A fuzzy model for load combination in structural analysis	845
X. Lu: Simplified dynamic condensation in multi-substructure systems	851
S. Qiang: An adaptive dynamic relaxation method for nonlinear problems	855
C. Qiu and G. Wu: Coupling analysis of substructures with different symmetries	861
C. W. S. To: Direct integration operators and their stability for random response of multi-degree-of-freedom systems	865
C. Wu and J. J. M. Too: Probabilistic modelling and finite-element formulation for thin lubrication and gap heat conduction	875
Y. Xu and H. Yang: Subdomain bounding technique for large scale shakedown analysis	883
W. X. Zhong and R. L. Zhang: Parametric variational principles and their quadratic programming solutions in plasticity	887
D. Zhu and G. Shi: The determination of defectiveness of linear structural dynamic systems	897
W. Shen: A general method for shakedown analysis	901
Part II	
3. <i>Finite Element Analysis and Other Numerical Methods</i>	
K. P. Chong and M. D. Kuruppu: Mixed mode fracture analysis using new semi-circular specimens	905

H. Kitagawa and K. Honke: Anisotropy and softening induced by void growth: a numerical simulation of micro-structural process	909
X. Li and G. Liu: A new approach for finite element analysis of constrained problems in elasticity	915
F. Ma and Z. Kuang: The analysis of crack propagation and arrest by moving element method	919
Z. Yan and Y. Fu: Solution of axisymmetric thick spherical shell by finite spherical layer method	923
P. M. Goorjian and G. P. Guruswamy: Transonic unsteady aerodynamic and aero-elastic calculations about airfoils and wings	929
 4. <i>Nonlinear Analysis and Dynamics</i>	
C. Borri and P. Spinelli: Buckling and post-buckling behaviour of single layer reticulated shells affected by random imperfections	937
S. P. Lim, K. H. Lee, S. T. Chow and N. R. Senthilnathan: Linear and nonlinear bending of shear-deformable plates	945
X. Mu and H. Hu: A finite element elastic-plastic-creep analysis of materials with temperature dependent properties	953
Z. Qin and Z. Chen: Large deformation analysis of shells with finite element method based on the S-R decomposition theorem	957
B. Sun and C. C. Hsiao: Viscoelastic boundary element method for analysing polymer quasifracture	963
W. Kanok-Nukulchai and W. K. Wong: Element-Based Lagrangian Formulation for large-deformation analysis	967
X. Bai and X. Zhao: Analysis of large deformation elastoplastic contact through finite gap elements	975
F. Venâncio Filho, A. L. G. A. Coutinho, L. Landau, E. C. P. Lima and N. F. F. Ebecken: Nonlinear dynamic analysis using the Pseudo-Force method and the Lanczos algorithm	979
C. Y. Liaw: Chaotic and periodic responses of a coupled wave-force and structure system	985
Z. Liu and R. Ye: Large deflection analysis of thin elastic shells by a hybrid stress method	995
 5. <i>Structural Design and Applications</i>	
A. Del Grosso and G. Righetti: Finite element techniques and artificial intelligence on parallel machines	999
A. Prakash, S. K. Agarwala and K. K. Singh: Optimum design of reinforced concrete sections	1009
L. Wang and G. Cheng: Shape optimization of revolutionary body and a quasi-analytic method of sensitivity analysis	1013

NUMBER 5

i Announcement

K. K. Tamma and R. R. Namburu	1017	An explicit velocity based Lax-Wendroff/Taylor-Galerkin methodology of computation for the dynamics of structures
K. K. Tamma and S. B. Railkar	1025	On heat displacement based hybrid transfinite element formulations for uncoupled/coupled thermally induced stress wave propagation

N. E. Shanmugam, R. Huang, C. H. Yu and S. L. Lee	1037	Uniformly loaded rhombic orthotropic plates supported at corners
R. C. Mahapatra and S. P. Dasgupta	1047	The mixed finite element method in elastic and elastoplastic axisymmetric problems
E. K. Yogeswaren and J. N. Reddy	1067	A study of contact stresses in pin-loaded orthotropic plates
R. P. Singh and J. Verma	1079	Evaluation of force-displacement relationship for multicomponent mooring cable by F.E.M.
H. T. Rathod	1091	Explicit stiffness matrices for axisymmetric triangular elements
H. T. Rathod	1101	Some analytical integration formulae for a four node isoparametric element
I. N. Doudoumis and E. N. Mitsopoulou	1111	On the solution of the unilateral contact frictional problem for general static loading conditions
S. M. Yunus	1127	A study of different hybrid elements with and without rotational d.o.f. for plane stress/plane strain problems
F. M. L. Amirouche and S. K. Ider	1135	A recursive formulation of the equations of motion for articulated structures with closed loops—an automated approach
G. A. Kardomateas	1147	Finite element investigation of plane strain asymmetric fully plastic fracture
Y. Feng	1153	Enumerating significant failure modes of a structural system by using criterion methods
Y. W. Kwon	1159	Development of finite element shape functions with derivative singularity
H. Chang	1165	Nonlinear elastomer analysis—survey of computer codes and case study for caliper seal
K. Subbaraj and M. A. Dokainish	1175	Side-node transition quadrilateral finite elements for mesh-grading
A. Klarbring and G. Björkman	1185	A mathematical programming approach to contact problems with friction and varying contact surface
C. R. Chiang	1199	<i>Technical Notes</i> A numerical method for solving elasticity problems: application to the problems of an infinite plate containing two circular holes
G. Venkateswara Rao, K. Kanaka Raju and N. V. R. C. Balabhaskar	1207	Effect of shear deformation on the postbuckling of isotropic annular plates under uniform internal radial load

- J. Agarwal, R. Kumar and S. P. Sharma** 1209 A FORTRAN code for sort with microcomputer applications
- A. Kaveh** 1215 On subminimal cycle bases of a graph for the force method

I Software survey section

NUMBER 6

i Announcement

- L. Jiang and R. J. Rogers** 1219 Combined Lagrangian multiplier and penalty function finite element technique for elastic impact analysis
- G. Chandrasekharappa and H. R. Srirangarajan** 1231 Nonlinear static and dynamic damped response of isotropic, elastic circular plates
- J. F. Hajjar and J. F. Abel** 1237 Parallel processing for transient nonlinear structural dynamics of three-dimensional framed structures using domain decomposition
- N. Ganesan and V. Soamidas** 1255 Inplane vibration analysis of polar orthotropic annular plates with linearly varying thickness
- H. S. Gopalakrishna and L. F. Greimann** 1263 Newton-Raphson procedure for the sensitivity analysis of nonlinear structural behavior
- W. A. M. Alwis** 1275 Computer aided optimal plastic design
- L. Gracia and M. Doblare** 1281 Shape optimization of elastic orthotropic shafts under torsion by using boundary elements
- A. Behraves, A. Kaveh, M. Nani and S. Sabet** 1293 A set theoretical approach for configuration processing
- A. Mukherjee and M. Mukhopadhyay** 1303 Finite element free vibration of eccentrically stiffened plates
- K.-J. Joo and E. L. Wilson** 1319 An adaptive finite element technique for structural dynamic analysis
- Y. S. Feng** 1341 Structural system reliability combining the constraint of damage tolerance design
- D. V. Griffiths** 1347 An iterative method for plastic analysis of frames
- S. Ram and J. N. Dube** 1355 Analysis of a milling machine structure for ribbing of the cross-arm
- S. S. Dey and S. K. Malhotra** 1359 Higher order finite strip analysis for curved bridge decks

- | | | |
|---|-------------|--|
| C. J. Goh and C. M. Wang | 1367 | Optimization of segment-wise linear structures via optimal control theory |
| F.-G. Yuan and
R. E. Miller | 1375 | A rectangular finite element for moderately thick flat plates |
| D. Briassoulis | 1389 | The zero energy modes problem of the nine-node Lagrangian degenerated shell element |
| R. Kari Thangaratnam,
Palaninathan and
J. Ramachandran | 1403 | Thermal stress analysis of laminated composite plates and shells |

Announcements

- | | |
|-------------|--|
| 1413 | 3rd International Conference on Numerical Methods in Engineering: Theory and Applications, 8-11 January 1990, Swansea, U.K. |
|-------------|--|

New Version of Makebase Released

- | | |
|-------------|---|
| 1414 | ASME Winter Annual Meeting, 10-15 December 1989, San Francisco, CA, U.S.A. |
|-------------|---|

Plasticity '89. 2nd International Symposium on Plasticity and its Current Applications, 31 July-4 August 1989, Mie University, Tsu, Mie Pref, Japan

I Software survey section

- | | |
|----------|--|
| i | List of Contents and Author Index for Volume 30, 1988 |
|----------|--|

